

INTERSTATE COMMERCE COMMISSION

WASHINGTON

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REPORT NO. 3549

ERIE RAILROAD COMPANY

IN RE ACCIDENT

AT PATERSON, N. J., ON

NOVEMBER 30, 1953

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## SUMMARY

Date: November 30, 1953

Railroad: Erie

Location: Paterson, N. J.

Kind of accident: Head-end collision

Trains involved: Passenger : Passenger

Train numbers: 319 : 2

Engine numbers: Diesel-electric unit 906 : Diesel-electric units 824 and 825

Consists: 2 cars : 11 cars

Estimated speeds: 12 m. p. h. : Undetermined

Operation: Timetable, train orders, and automatic block-signal system

Tracks: Double; 3°12' curve; 0.39 percent descending grade westward

Weather: Drizzling; dark

Time: 6:30 p. m.

Casualties: 17 injured

Cause: Route through interlocking not being properly lined and train moving against the current of traffic without authority



INTERSTATE COMMERCE COMMISSION

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REPORT NO. 3549

IN THE MATTER OF MAKING ACCIDENT INVESTIGATION REPORTS  
UNDER THE ACCIDENT REPORTS ACT OF MAY 6, 1910.

ERIE RAILROAD COMPANY

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January 27, 1954

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Accident at Paterson, N. J., on November 30, 1953, caused by the route through an interlocking not being properly lined, and a train moving against the current of traffic without authority.

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REPORT OF THE COMMISSION<sup>1</sup>

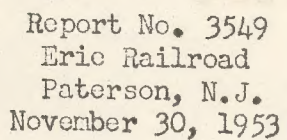
CLARKE, Commissioner:

On November 30, 1953, there was a head-end collision between two passenger trains on the Erie Railroad at Paterson, N. J., which resulted in the injury of nine passengers, two dining-car employees, one train porter, and five train-service employees. This accident was investigated in conjunction with representatives of the Board of Public Utility Commissioners of the State of New Jersey.

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<sup>1</sup> Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Clarke for consideration and disposition.







### Location of Accident and Method of Operation

This accident occurred on that part of the New York Division extending between Jersey City, N. J., and Port Jervis, N. Y., 87.3 miles. In the vicinity of the point of accident this is a double-track line, over which trains moving with the current of traffic are operated by timetable, train orders, and an automatic block-signal system. Croxton and XW Tower are located, respectively, 2.2 miles and 15.0 miles west of Jersey City. A second line, designated as the Newark Branch, extends between Croxton and XW Tower and connects with the Jersey City-Port Jervis line at each of these points. The Newark Branch is south of the Jersey City-Port Jervis line. In the vicinity of XW Tower the Newark Branch is a single-track line, over which trains are operated by timetable, train orders, and a manual block-signal system. Throughout a considerable distance west of XW Tower two auxiliary tracks parallel the main tracks on the south and connect with four lower-level station tracks at the station at Paterson, 0.7 mile west of XW Tower. A west-bound train moving from the Newark Branch to the westward main track of the Jersey City-Port Jervis line at XW Tower enters the north auxiliary track at switch 25, crosses from the north auxiliary track to the eastward main track at crossover 22-21, and crosses from the eastward main track to the westward main track at crossover 16-15. Switch 25 and the switches of these crossovers are located, respectively, 82 feet, 90 feet, 281 feet, 441 feet, and 640 feet west of the interlocking station. The accident occurred on the eastward main track at a point 1,058 feet west of XW Tower and 2,464 feet east of the station at Paterson. From the east on the Newark Branch there is a 6° curve to the left throughout a distance of 1,150 feet immediately east of switch 25. From the west on the eastward main track of the Jersey City-Port Jervis line there are, in succession, a 1°10' curve to the right 165 feet in length, a tangent 383 feet, a 3°12' curve to the left 920 feet to the point of accident and 620 feet eastward, and a tangent over 1,000 feet in length. The grade is 0.39 percent descending westward at the point of accident.

Interlocking signal 46, governing west-bound movements from the Newark Branch, is located 1,625 feet east of the point of accident. Automatic signal 15-2 and interlocking signal 3-5, governing east-bound movements on the eastward main track, are located, respectively, 1,545 feet west and 349 feet east of the point of accident. These signals are



of the color-light type. Signals 46 and 3-5 are continuously lighted, and signal 15-2 is approach lighted. Aspects applicable to this investigation and the corresponding indications and names are as follows:

<u>Signal</u>	<u>Aspect</u>	<u>Indication</u>	<u>Name</u>
46	Red-over-yellow	PROCEED AT RESTRICTED SPEED.	RESTRICTING.
15-2	Yellow over number plate	PREPARE TO STOP AT NEXT SIGNAL. TRAIN EXCEEDING MEDIUM SPEED MUST AT ONCE REDUCE TO THAT SPEED.	APPROACH.
3-5	Red-over-red	STOP.	STOP.

Signal 46 displays red-over-yellow as its least restrictive aspect. This aspect is displayed when the route is lined for movement from the Newark Branch to either main track or to either of the auxiliary tracks. The controlling circuits of signal 15-2 are so arranged that when the block of this signal is unoccupied and signal 3-5 indicates Stop, signal 15-2 indicates Approach.

Interlocking limits at XW Tower extend from signal 46 to signal 3-5 on the eastward main track and to a point several feet west of switch 15 on the westward main track. The interlocking is of the electric type. It is provided with a 56-lever control machine. Mechanical, approach, time, route, and indication locking are provided. After a train enters the first track section of a route which has been established and for which a proceed signal indication has been displayed, route locking prevents the manipulation of any switch within the route until after the train has cleared the track section in which the switch is located. A track model board is located above the control machine. Visual indicators on this board become lighted when an approach circuit or any track section within interlocking limits is occupied.



This carrier's operating rules read in part as follows:

DEFINITIONS:

Medium Speed--One-half maximum authorized speed at point involved, but not to exceed thirty miles per hour unless otherwise provided.

Restricted Speed--Proceed prepared to stop short of train, obstruction, or anything that may require the speed of a train to be reduced.

17. Headlight will be displayed to the front of every train in the direction in which train or engine is moving.

It must be dimmed:

\* \* \*

(b) While passing through yards;

(c) Approaching stations at which stops are to be made \* \* \*

\* \* \*

(e) On two or more tracks when approaching a train in the opposite direction;

\* \* \*

D-151. Where two main tracks are in service trains or engines must keep to the right unless otherwise provided.

\* \* \*

605. Interlocking signals govern the use of the routes of an interlocking, and as to movements within interlocking limits, their indications supersede the superiority of trains \* \* \*

\* \* \*



The maximum authorized speeds for passenger trains are 20 miles per hour on the Newark Branch east of XW Tower, 15 miles per hour for diverging movements through the interlocking at XW Tower, and 50 miles per hour on the main tracks west of XW Tower.

### Description of Accident

No. 319, a west-bound first-class passenger train, consisted of Diesel-electric unit 906 and two coaches. Both cars were of all-steel construction. This train operates via the Newark Branch from Croxton to XW Tower and via the Jersey City-Port Jervis line beyond XW Tower. It departed from Franklin Ave., 5.6 miles east of XW Tower and the last open office, at 6:16 p. m., 3 minutes late, passed signal 46, which indicated Restricting, and entered the eastward main track at XW Tower. It passed XW Tower at 6:26 p. m., 1 minute late, according to the dispatcher's record of the movement of trains, continued westward on the eastward main track instead of its intended route on the westward main track, and while moving at an estimated speed of 12 miles per hour it collided with No. 2 at a point 349 feet west of the west interlocking limits of XW Tower and 2,464 feet east of the station at Paterson.

No. 2, an east-bound first-class passenger train, consisted of Diesel-electric units 824 and 825, coupled in multiple-unit control, two express cars, one baggage car, two mail cars, three coaches, one dining car, and two sleeping cars, in the order named. All cars were of all-steel construction. This train passed Ridgewood Jct., N. J., 4.6 miles west of Paterson and the last open office, at 6:18 p. m., 2 minutes earlier than the schedule time at that station, and stopped at Paterson at 6:27 p. m. It departed from that station on the eastward main track at 6:28 p. m., 1 minute late, passed signal 15-2, which indicated Approach, and was struck by No. 319 either immediately before or immediately after it stopped.

No equipment of either train was derailed. The Diesel-electric unit of No. 319 was considerably damaged, and the first car was somewhat damaged. The first Diesel-electric unit of No. 2 was badly damaged. The second Diesel-electric unit and the first, third, fifth, sixth, and seventh cars were somewhat damaged.



the conductor,  
The engineer, and the flagman of No. 319 and the engineer  
and the train baggageman of No. 2 were injured.

It was drizzling and ~~dark at the~~ time of the accident,  
which occurred about 6:30 p. m.

#### Discussion

As No. 319 was approaching XW Tower the enginemen were maintaining a lookout ahead from the control compartment of the locomotive. The members of the train crew were in the cars of the train. The headlight was dimmed. The brakes of the train had been tested and had functioned properly when used en route. The enginemen said that the speed was reduced as the train approached signal 46, which indicated Stop. The indication of the signal changed from Stop to Restricting before the train stopped, and the speed then was increased to 12 or 15 miles per hour. Signal 46 indicates Restricting when the route is lined for movement on either the south or the north auxiliary track or on the eastward or the westward main track. No other signal is provided to govern the movement or to indicate the route that has been lined. The enginemen expected that the train would cross from the eastward main track to the westward main track at crossover 16-15. The engineer said that the front of the train had passed signal 3-5 a distance of about 80 feet before he became aware that the train had not crossed to the westward main track. At this time he also observed that No. 2 was approaching on the eastward main track. He immediately made an emergency application of the brakes. He thought the speed had been reduced from about 15 miles per hour to about 12 miles per hour when the collision occurred. The fireman was not aware that anything was wrong until the engineer made the brake application. Both enginemen said that it was drizzling and that as their train moved through the interlocking they were looking toward the dimmed headlights of No. 2 and of two locomotives on the auxiliary tracks south of the main tracks. They thought that these conditions may have contributed to the fact that they failed to notice that their train had not crossed to the westward main track.

According to the dispatcher's record of the movement of trains, No. 319 passed XW Tower at 6:26 p. m. The conductor of No. 2 said that his train departed from the station at Paterson about 6:28 p. m. Apparently No. 319 actually passed XW Tower 2 or 3 minutes later than 6:26 p. m.



As No. 2 was approaching the point where the accident occurred the enginemen were maintaining a lookout ahead from the control compartment of the locomotive. The members of the train crew were in the cars of the train. The headlight was dimmed. The brakes of the train had been tested and had functioned properly when used en route. The enginemen said that after the train departed from the station at Paterson the speed was increased to about 15 miles per hour. Signal 15-2 indicated Approach. As the train approached signal 3-5, which indicated Stop, the engineer made a brake application preparatory to stopping the train short of the signal. The enginemen first became aware that No. 319 was moving on the eastward main track when that train was in the vicinity of signal 3-5. At this time the speed of No. 2 had been considerably reduced. The enginemen said that No. 319 struck their train either immediately before or immediately after it stopped. The engineer observed that after the accident occurred the indication of signal 3-5 changed from Stop to Proceed.

The signal maintainer at XW Tower was on the lower floor of the interlocking station when the accident occurred. He immediately walked westward through the interlocking. At that time he observed that switch 21 was in position for movement through crossover 22-21 and that switches 16 and 15 were each in position for through movements on the main tracks. When he returned soon afterward, switch 21 was being restored to position for movement on the eastward main track. When he reached the upper floor of the interlocking station he found that the operator had lined the route for an east-bound movement on the eastward main track.

The operator at XW Tower said that as No. 319 was approaching signal 46 he lined the route for that train. No. 2 entered the approach circuit on the eastward track before No. 319 had passed through the interlocking. The operator did not notice the indications of the visual indicators on the model board as No. 319 was passing, and he assumed that after the train cleared the interlocking limits it was moving on the westward main track. He then lined the route for No. 2 to move eastward on the eastward main track. He was not aware that an accident had occurred until he was so informed by the signal maintainer.



After the accident occurred switches 15 and 16 were found to function properly. Inspection and tests of the signal apparatus disclosed no condition which would cause an improper operation of the interlocking.

When the route is lined for movement from the Newark Branch to the westward main track at XW Tower, switches 15, 16, 21, 22, 33, and 34 are in reverse position. When the route is lined for movement from the Newark Branch to the eastward main track, switches 15 and 16 are in normal position and switches 21, 22, 33, and 34 are in reverse position. Signal 46 governs both routes. The fact that No. 319 moved from the Newark Branch to the eastward main track indicates that when the operator lined the route for that train he failed to place switches 15 and 16 in reverse position. The operator said that at the time No. 319 passed there was no doubt in his mind that the route was not lined toward the westward main track. However, he said that after he found that switch 16 was in normal position when the train passed over it he was not certain that he had placed the switch in reverse position when he lined the route. He said he noticed no irregularity in the positions of the levers after No. 319 passed, but he was not positive that switches 15 and 16 were not already in normal position at the time he restored the other switches to normal.

The rules of this carrier provide that where two main tracks are in service trains must keep to the right unless otherwise provided. Signal 46 governs the use of the routes of the interlocking at XW Tower but does not convey authority for movements beyond the interlocking limits. In the instant case, the operator unintentionally lined the route for No. 319 to proceed on the eastward main track. No. 319 had moved some distance beyond the interlocking limits before the crew became aware that the train was on the wrong track and moving against the current of traffic.

#### Cause

This accident was caused by the route through an interlocking not being properly lined, and a train moving against the current of traffic without authority.

Dated at Washington, D. C., this twenty-seventh day of January, 1954.

By the Commission, Commissioner Clarke.

(SEAL)

GEORGE W. LAIRD,  
Secretary.



